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Rural Improvement Societies.

IT is now some twenty years since the first village Improvement Societies were organized and the history of many of them justifies every reasonable hope in which they were founded. Some were established for a single purpose—as, for example, the laying down of sidewalks or the planting of a public square—and when this end was well accomplished they were formally disbanded. Others entered upon a wider field of usefulness and there is still no abatement of their beneficent activity. Under their influence public spirit has been stimulated and public taste has been cultivated; the health of country communities has been guarded by more wholesome surroundings and country life has been made more satisfying and attractive. Need enough there was and still remains for such organizations, for it is not alone in city sewers and crowded tenements that the seeds of disease are festering. Heaps of offense reek in country hamlets and by rural roadsides; poisoned water pours into country wells and fever-laden gases are generated in village cellars. We cannot hope that much natural beauty will survive under the trampling of a great city's population, but there is no justification for the neglect by rural communities of the natural beauty which appeals to them on every hand, still less can excuse be found for the wanton disfigurement of the native graces of the country by those who should be most concerned in conserving and developing them. The associations which have adhered with intelligence and zeal to the purposes for which they were constituted have accomplished even more than the most hopeful could have anticipated, for their work is seen not only in beautified road-sides, in more general cleanliness and health and in largely increased land values, but in a growing local pride as well, in a more alert intellectual activity and in a more elevated social life.

But there have been failures, too, or at least apparent failures, and these were foredoomed in any community where but comparatively few were interested. A small band of enthusiastic and well-instructed people can accomplish much when they have won the help of their neighbors, but work of this kind cannot prosper until there is a general co-operation. The effort to overcome inertia and opposition is too costly and wearisome for any but the most courageous and patient. It may be incorrect to characterize the efforts at reform under these depressing conditions as failures, for genuine earnestness in a good cause is never altogether wasted. But in too many instances the zeal of the few has been only superficial, or what is quite as bad, it has been uninstructed; and just here lies the fundamental reason for the most signal failures.

It requires no special skill to keep streets and yards clean and road borders tidy, but it is an art to build a good road, and unless the construction of a highway is planned and supervised by a trained engineer it will probably be impassable when the frost is leaving the ground the next spring. Amateur sanitarians make wild work when devising a system of drainage for a town, as an outbreak of fever is too likely to demonstrate. Amateur tree-planters who place White Pines in heavy, undrained lowlands, and set half hardy and short lived exotics on bleak and barren knolls, will have a discouraging experience when their cherished trees sicken and die. If the service of an expert is needed for the preparation of a creditable design for the improvement of private grounds, how much more is special training demanded when an entire town is to be treated with a view to the development of its landscape possibilities! It cannot be expected that the private dwellings of a village will all be remodeled into beauty and harmony under the directions of a competent architect, but the advice of such an artist would be invaluable not only in designing the public buildings, but in giving caution and counsel even down to such details as the village fences, the tree guards and the town pump.

All this means that while the love of order, the good taste and the intelligence of many communities will suffice to make a genuine improvement in village homes and their surroundings, the full measure of the possible usefulness of those associations can only be attained when they are directed by counsel of training and experience.

It is true that skillful masters in every department of the work to be undertaken are not always available and it would not be wise for every community to postpone action until their services were secured. But it is prudent in every case where enterprises of this nature are contemplated to move with deliberation and to make a careful study of the entire field before actual work begins. Much can be learned from the experience of other societies. Some of them publish admirable lists of trees for planting. The officers of those that have been most successful in this direction will gladly explain their methods of planting, and subsequent care of the trees, which is of equal importance. The annual reports of the most prosperous are full of information and suggestion on many important matters, including the best methods of raising funds and of enlisting the co-operation of the town authorities. We learn from one of the interesting letters we have been receiving from the Secretaries of various societies, that a movement has been started to form a New England Association of Village Improvement Societies. The discussions at an annual convention of delegates from all the local organizations throughout the Eastern States could not fail to be helpful.

With all these opportunities for instruction, it may be hoped that new associations will be able to avoid certain errors into which the pioneers in this movement were naturally led. And yet the counsel of a trained landscape gardener would be invaluable in every large enterprise, even when the most is made of all the means of instruction that have been named. To the objection that such counsel is expensive, the general reply may be made that the best is always the cheapest. And more specifically it may be said that when any considerable outlay is to be made, much more and much better work will be accomplished when a fair percentage of money expended is paid for the best advice that can be obtained.

Labels.

A THOROUGHLY satisfactory label for a plant has not been invented; and yet a good label is one of the most important elements of a good garden. It should be indestructible, cheap and unobtrusive, and it should be made of a material upon which ordinary writing will be durable and legible. The labor involved in naming and in preserving the names of a large collection of plants is so great that experiments are constantly made with different materials, in the hope that something may be found that may answer all the requirements of a good label, at once cheap and durable. The results of many such experiments have been presented in a most interesting and instructive paper, lately read before the Massachusetts Horticultural Society by Mr. Robert T. Jackson, of Boston.

Metal labels are more durable than wooden ones; and zinc, Mr. Jackson finds, is the metal most commonly used, as it is cheap and reasonably durable. Bright, fresh zinc, first cleaned for the purpose with very weak muriatic acid, may be written on with an aqueous solution of chloride of platinum or chloride of copper. These solutions can now be purchased from dealers in seeds and garden supplies; and a quill pen is the best thing to use for writing with them. Labels thus prepared need no further attention. Zinc slightly roughened by oxidation, which is easily produced by leaving it for a few weeks in a damp place, may also be written on with a soft lead pencil. The writing soon becomes indelibly fixed on the zinc, and is as permanent as if the chemical ink had been used. Labels prepared in this way are known to have been legible ten years after they were written, and are, Mr. Jackson considers, about the most satisfactory to use out-of-doors.

Iron, or tinned iron, painted a neutral tint and lettered, is also used sometimes for labeling large trees, but copper, chemically one of the most stable metals, would no doubt make a better label, the names being written on it with a white or light-colored paint. On smaller copper labels, names, as Mr. Jackson suggests, "could be very easily and rapidly marked by an etching process as follows: Heat a sheet of copper, rub over with etcher's wax, and when cool, write the names with a steel point, laying bare the copper on the lines of the writing, expose to nitric acid and water—equal parts—for a few minutes, clean off the wax with turpentine, and cut up the copper into suitable-sized labels." Pure tin—not the tinned iron usually known as tin—is recommended for labels to be used in a warm green-house temperature, where other metals are subject to extreme corrosion. Names or numbers can be easily stamped with common steel dies into any of these metals, and stamped labels are more permanent than written ones. And even when it is desirable to write the name on a metal label, a supplementary number corresponding to a number in a written record of the collection adds immensely to its value. A narrow strip of lead stamped with a name or with a number and wound about the stem of a plant is used in many European establishments, and makes a permanent label, although it has to be taken off the plant to be read. Different styles of pottery labels have been tried, but they break easily, and the careless blow of a spade will finish the best of them. White porcelain labels, with the letters burned in, and set in iron frames, are neat and indestructible, and perhaps the best which have yet been devised. They are far too expensive, however, for general use. Mr. Jackson calls attention to a white composition label, in use in the Botanic Garden at Geneva, which can be written on with a pencil or with indelible ink, but this would probably prove almost as brittle and easily broken as pottery.

Wood is more generally used, however, in this country, for labels, and probably always will be. Well-selected white pine labels, soaked in linseed oil, will last for a number of years, and white pine is probably the cheapest wood of its durability which can be obtained for this purpose. California redwood is very durable, and not now very expensive. It holds paint well, and makes an admirable label, and so do the wood of the Southern Cypress and the Catalpa. The last, however, is not commonly found in the market. Locust makes a very strong and durable label, but it is expensive and its surface is coarse for lettering. Labels made of pine, or of other not very durable woods, when used in the ground should have the lower portion carefully coated with tar. A pine stake so prepared, and then painted with two coats of good paint before being lettered, will last for eight or ten years. It is a rule, which, so far as possible, should never be deviated from, that the label should be securely attached to the plant itself. It is easy to do this in the case of trees and shrubs, but with annual, bulbous and herbaceous perennial plants the label must be placed in the ground near the plant. There is always danger that such labels may be lost or misplaced. The record, therefore, in regard to such plants, is much more difficult to preserve than in the case of trees and shrubs. A metal label with the name and a number plainly stamped into it, and securely attached to a branch with a piece of good strong copper wire is the best record which has been devised, and such a label should be placed on trees and shrubs whenever it is important or desirable to keep a record of their history, even when they are labeled in a more conspicuous manner for the benefit of the public. It must be borne in mind, however, that labels attached to branches or the stems of small trees should be examined every year, and the wire loosened whenever the growth of the plant causes it to bind the bark. Many plants are ruined from neglect to attend to this precaution. This is the great danger, and the only drawback to labels fastened in this manner.

The best label for a large tree, when it is desirable to instruct the public by this means, is a piece of cold rolled copper, twelve inches long by eight wide. The upper edge should be bent nearly at right angles with the face of the label, to make a narrow hood in order to protect the letters from rain and moisture running down the trunk. The Latin and English names of the tree, and its native country, should be printed in some light neutral tint, and the label should be tacked on the trunk with stout copper tacks, at the height of the human eye.

Trees with trunks too small to carry a label of this description, shrubs, and perennial and annual plants, can be labeled with stout stakes prepared in the manner already explained, and driven into the ground deep enough to resist the heaving influence of the frost. A neater label for such plants, although more expensive, can be made by suspending a small oblong metal or wooden label with copper wire to a slender galvanized iron rod, bent at one end into an eye. The rods should be not less than three-sixteenths of an inch thick, and from eighteen to twenty-four inches long, in order to enable them to have a firm hold on the ground, and to carry the label well up in front of the plant. Such labels, although more expensive, have this great advantage over stake-labels that the writing upon them can be made horizontal to the eye, and therefore much more easily read. They are, moreover, more durable—indeed such labels if carefully made are practically indestructible, and they are less objectionably conspicuous. They should supplement, however, in the case of small trees and shrubs, the small metal label attached to a branch.

The Senate of New York acted wisely and in accordance with the most enlightened sentiment of the State when it defeated the bill authorizing the Forest Commission to lease the public lands under their charge to private individuals. Not to repeat the objections to this measure which have already been presented in these columns, it may be said that the building of many houses and other permanent structures which was invited and encouraged by this bill would go far to rob the North Woods of that wildness which is one of their principal attractions. A fringe of painted villas and fences about an Adirondack lake would certainly add nothing to its charm.

Roadside Beauty.

WHEN this part of the country was first settled a rail fence, half a mile long, was built on the line between two neighbors. This was renewed by pieces and remained the barrier between the two farms for thirty-five years. These men were not representatives of the highest type of snug, thrifty farmers. They were tree slayers and bared their acres of everything that stood in the way of the plow or mowing machine. But along this line fence they stored the stumps and stone and other rubbish that impeded their work, and bushes and young trees soon sprang up. The row of wild growth became a grand place for Raspberries and Blackberries when I was a lad, and the regular harvest of Hazel Nuts came from the same thicket. It was a famous place, too, for rabbits and squirrels, partridges and quails to hide in.

But a new set of landholders came in to revolutionize the neighborhood. A few tree lovers settled here and my father was one. He bought the farm on one side of the line hedge and another progressive farmer bought the adjoining one. A highway was laid out on this half mile of line; the two thrifty farmers cleared out the old fence, burned up and hauled away the rubbish, and with pruning implements weeded out the useless and carefully saved the most promising trees in the greatest possible variety, the different Oaks, the wild Black Cherry, and the Elms predominating. They were left in groups, no effort being made to save trees at regular intervals. These trees grew rapidly, and a fine road-bed was made on either side. It is, to-day, the most beautiful half mile of road in all our county, the pride of every one who loves a tree or appreciates natural beauty.

But the race of vandals is not extinct. Land became valuable and was bought up by speculators who were anxious to cut the acres into small lots and get rich. They wanted to "improve" the neighborhood and "make it attractive." They sought to widen the highway for a mile and a half, including this half mile, and make it into a "boulevard," with a wide road-bed in the centre, a sidewalk on the borders, and rows of trees on either margin, "the way they do in Chicago." I objected mildly, upon the general plea of "no cause." They pressed harder and extolled the beauty and grandeur of a generous boulevard, with every undulation taken out of it, and a grand American Elm on either side once in sixty feet. They pictured the noble residences that would be erected on its borders and the delight with which they would grub out that unsightly, irregular, obstructive row of trees, and have no break in the road-way from end to end. I became impatient, wanting none of their improvements, caring little for a view of fine residences on forty-foot lots, with an ownership of two-thirds of a dead Elm tree planted in front.

Of course I was set down as lacking in public spirit and obstructing intelligent progress.

Surely it is not true progress to lay out every suburban highway on some Metropolitan model and take all the individuality out of a neighborhood. Refined taste does not commend the obliteration of all native and natural beauty, to make room for some formal scheme of an engineer's devising.

We cannot have trees, shrubs and vines on the business streets of a city, and get any satisfaction out of them, but on our highways, in the suburbs, there is no reason why these untamed graces may not only be preserved and protected, but rendered more attractive by delicate attention. This may be small work for a landscape gardener, but it is good work for some kind of an artist, who not only appreciates Nature, but is willing to adopt some of her methods in rendering beautiful the surroundings of homes that have not the advantage of park-like grounds or magnificent distances.

Many of the most attractive highways in our State owe their beauty to the shiftlessness of the pioneers, who allowed a mass of bushes to grow up in the corners of the old worm fences undisturbed for a generation; afterward to be utilized by their more thrifty successors in the embellishment of the roadsides. No plantations formed by man are equal in beauty to these irregular masses of trees that are of Nature's planting.

Occasionally I note an example of the workings of some man's mathematical mind, who has tried to clear out one of these rows, leaving a tree once in so many feet, and thus ruining the effect for all time. No one can pass along a highway fringed with one of these wild borders without a feeling of gratitude to those easy-going settlers who allowed Nature to do what she could to compensate for man's wholesale destruction of forest beauty, which was a necessary sacrifice, perhaps, to advancing civilization.

We need not be sentimentalists of the kind that refuse to destroy a tree that has passed its usefulness, or that stands as an obstruction in a cultivated field, but we should have a wholesome respect for Nature's attempts to beautify the waste places of the earth, and especially for the way-side shrubbery, which gives attractiveness to the roads we all travel and ought to enjoy.

Grand Rapids, Michigan. *Chas. W. Garfield.*

The Two Types of Cemeteries.

AS a matter of design, burial places are of two distinct types of character—the architectural or formal, and the rural or picturesque.

The *Campos Santos* of most Latin countries are instances, though often deplorably poor ones, of the formal type. Most of the larger cemeteries of this country are instances of the rural type.

It must not be thought, because we are most accustomed to the rural cemetery, that it is the only good kind, and that the formally designed place of burial is foreign, antiquated, puerile, and in every way undesirable. The truth is that each type has merits of its own. Both should be had in mind when it is proposed to create a new cemetery, and all the special conditions of the case should be well considered and the decision as to which to adopt should be made according to the balance of advantages.

Cemeteries of the formal type may well be adopted in districts where the soil is too poor, the climate too hot and dry, or too cold and bleak, for the successful growing of trees, shrubs and turf; or where the available area is very limited in proportion to the number of burials to be expected; or, what comes to much the same thing, where the land is excessively costly; or where the tastes, habits, knowledge and skill of the people strongly incline them to work out more artistic results in architecture than in landscape gardening. The architectural or formal style lends itself to the multiplication of large and costly monuments as well as small and modest memorials, each with some individuality, but forming part of a comprehensive design, the scope of which may range from a geometrical, garden-like court, to a great building of the most monumental and dignified character, or from a city block to a great wood with formal alleys and vistas running through it. The principle admits of uniting the highest achievements of architects, sculptors, painters, and other artists, with the most skillful gardening and the most choice trees and shrubs, into one rich, harmonious and satisfactory whole.

As, however, the fashion of making cemeteries in what is intended to be the rural style has become firmly established in this country, through the existence in parts of it of favorable conditions, a few suggestions as to that style will be of more practical interest than a further discussion of what may be accomplished in the formal style. As one of the results of the increased thought which has, of late years, been given to the high arts and to those of architecture, interior decoration and furnishing, a sentiment has begun to spread among us of dissatisfaction with the appearance of many of our noted rural cemeteries.

If one were to ask, more in particular, the occasions for this dissatisfaction, the complaints would probably be made that the monuments, though costly and made in a sufficiently workmanlike manner, are so generally commonplace and devoid of originality and imagination; that the habitual use of white stone amidst green verdure forms too violent and too frequent contrasts; that the incongruities between the monuments are intensified by their being crowded together while but little attempt is made to screen one from another; that the monuments, their decorations, and their architectural and gardening accessories are so often entirely inappropriate to the purpose in view; and that the necessary and unnecessary artificial objects are multiplied to such an extent as to completely dominate and sometimes even obliterate the natural elements which can alone give any excuse for the use of the term rural as applied to a cemetery.

There is sufficient ground for these complaints to enforce the reflection that whatever is built by man can be designed and executed with due regard to artistic as well as to mechanical principles. There are canons of good taste which should be as well known to landscape gardeners as to architects and other artists, and these, if intelligently applied to rural cemeteries, even though by men whose artistic ability is not the very highest, would secure far better results than those to which we are now accustomed.

F. C. Olmsted.

Foreign Correspondence.

London Letter.

THERE was a fair crop of new and rare plants exhibited at the Royal Horticultural Society's meeting yesterday and thirteen certificates of the first class were awarded. The finest plant at the meeting happened to be an old green-house climber *Bignonia Tweedieana*, first introduced to Europe from Buenos Ayres fifty years ago. But it has never been shown in such perfection before, otherwise it would have been awarded a certificate, as it was by a unanimous committee on this occasion. Like most other Bignonias, it is a shrubby climber, having long slender shoots, which (as the specimens showed) become wreathed with a profusion of large showy flowers of a rich warm yellow. They are fully three inches across and remind one of an Allamanda, but is a far more graceful and pleasing plant. It has been commonly grown in England as a stove climber, but now it appears that it wants a greenhouse temperature in order to flower well. In any case it well repays any amount of attention, if it can be made to bloom freely, as these specimens from Pendell Court.

Another plant of importance was a variegated leaved form of the common *Cordyline indivisa*, erroneously called *Dracæna indivisa*. It has a symmetrical tuft of long, narrow leaves, which, in this novelty, are broadly marked with a whitish yellow band on each margin, giving the plant a pretty effect. A new single Rose, a variety of *R. polyantha* and named *grandiflora*, was certificated because of the profusion of the large white flowers and buds, together with the luxuriant foliage of the plants exhibited, which, of course, had been forced. Those who like single Roses will like this one. It was shown by Paul, of Cheshunt.

A pretty little crested, fronded Selaginella named *S. cuspidata crispa* was next certificated. This is only a few inches high and the fronds are like a feathery moss of a cheerful green. It came from B. S. Williams, who makes a specialty of new Ferns and Selaginellas. He showed also a rare Maidenhair Fern (*Adiantum Æthiopicum elatum*), a tall growing and extremely elegant plant, but as the committee were doubtful about its difference from similar kinds of Maidenhair Fern, it was passed.

The white variety of *Iris stylosa*, which has been placed before the committee at two previous meetings this year, was at length honored with a certificate. The albino is precisely similar to the typical *I. stylosa*, excepting the absence of color and the fact that its flower season extends over several weeks is, in itself, a great merit in a plant from Algeria that flowers naturally out of doors in our climate.

Among the numerous Amaryllises shown there were few that conformed with the high standard that has been agreed upon among Amaryllis fanciers. The flowers must not only be large, but must show an advance in the direction of perfect form, while the color must be distinct and good. The finest of the five certificated was called Conqueror, which has flowers quite eight inches across, with broad and nearly equal petals of a glowing scarlet, with greenish white centre. The variety Finette is very lovely, as its large and finely formed flowers are pure white, save a few pencilings and splashes of crimson on the sepals. Rodney has flowers of a vivid scarlet, not so fine in size or form as Conqueror, while one called Miss Roberts has white flowers exquisitely netted and veined with heavy lines of deep crimson. The above were all certificated from the group shown by Veitch & Sons. A very fine variety was certificated from B. S. Williams. It is named Emperor Frederick and is remarkable for the very large flowers, not so open as those shown by Veitch, but its rich scarlet color makes it an exceedingly fine variety.

Two new Tree Carnations from Turner, of Slough, were thoroughly worthy of the certificates awarded to them. They were Purple King, with large rosette-like flowers, three inches across, of a rich plum purple, and Mrs. Grenfell, best described as a magnified form of the popular Miss Joliffe, as its large flowers have the same pleasing, delicate, salmon pink color. Both will be invaluable sorts for winter and early spring flowers. From a number of named sorts of Cineraria, all of very dwarf, dense and compact habit shown by James, the committee selected for a certificate one called Maria, which has enormous flowers of pure white with purple centres. Some object to certificating Cinerarias because the sorts do not come true from seed, but the same may be said of most other florists' flowers. James' best named sorts are propagated by cuttings.

Wm. Goldring.

The Banded Hickory Borer.

THIS insect is common, I think, wherever Hickory grows, but it has received comparatively little attention from entomologists. It appears to work more particularly on timber that has been cut, and frequently wood that has lain for a year or two after being felled has been found so full of galleries, that its value, even for firewood, is greatly lessened, while it is rendered entirely worthless for manufacturing purposes of any kind.

In Figures 26 and 27 are shown, reduced one-half, cross and longitudinal sections of a hickory stick, picked out of cord wood from a great number fully as badly eaten. From these sticks were secured a number of the grubs and pupæ, and later, in May, the adult beetles issued, so that its life history can be pretty fully stated. The eggs (Figure 28, *a* and *b*) were obtained from the bodies of adult females, as many as ninety-three being found in the body of a single one. Judging from the fact that cord wood and felled timber are so badly infested by the borers, while standing wood appears to be but slightly attacked, it seems that adult insects must select cut timber in which to deposit their eggs.

The young grubs commence channeling the wood at once, but it is not known certainly how long it requires to attain full growth. The cord wood mentioned above as furnishing the adult beetles, had probably not been cut for more than two or three years at the most, and we can safely assume that the eggs in this case were laid after the wood was cut, which would limit their life to two or three years. On the other hand, instances are recorded where the adult beetles have issued from furniture, carriages,

etc., some time after their manufacture. This would indicate a much greater longevity, though the instances are probably exceptional. When full grown the grub is yellow and has the appearance shown in Figure 28 at *c*. It is provided with three pairs of very minute legs, scarcely distinguishable without a lens. At this time it may be found in a burrow in the hard wood, but which has been carried to the surface or at least to the bark. The burrow is an ellipse in a cross section as shown in Figure 26, and in some cases reaches half an inch in its longer diameter, but may extend for three or four inches, running with the grain of the wood. The change from this stage to the chrysalis stage (Figure 28) takes place in the latter part of winter or in spring, occasional ones being found as early as the first of January. The gallery in which the change

Fig. 26.—Cross section of Hickory stick showing galleries of *Chion cinctus*. Diameter, x ½. (From nature, by H. Osborn.)

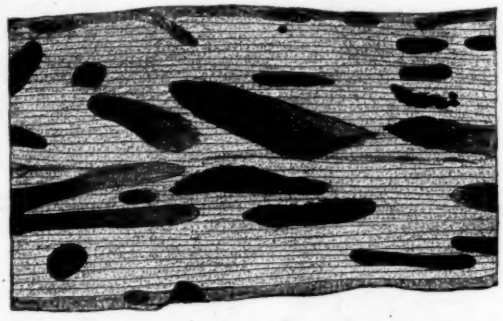

Fig. 27.—Longitudinal section of Hickory stick showing galleries of *Chion cinctus*. Diameter x ½. (From nature, by H. Osborn.)

takes place is loosely filled with chips, before and behind the chrysalis, so that it is partially protected, while no difficult boring is left for the adult to perform.

The adult beetles (Figure 28, *e*, male; *f*, antennæ of female), for the specimens I reared, issued quite uniformly during the last two weeks of May. These are grayish-brown in color, an inch or more in length, and have commonly a yellowish oblique band on each wing cover. This band, however, is often wanting. The front part of the body is cylindrical with a sharp spine at each side, and there are two spines at the end of each wing. The antennæ of the males are more than twice the length of the body, while those of the female are only about the

Fig. 28.—*Chion cinctus*.—Drury. *a*, eggs, natural size, *b*, enlarged; *c*, larva, full grown; *d*, pupa, side view; *e*, adult male; *f*, antenna of female. (From nature, by H. Osborn.)

length of the body. It is evident that any measures designed to protect the timber must be adapted to the time and method of egg deposition, since it is utterly useless to attempt the destruction of the grubs after they have become established in their burrows. Growing timber is so slightly affected, that its protection is not necessary; but timber intended for manufacturing purposes, and even for firewood, unless used the first year after felling, must be protected to avoid injury. Timber cut in the fall or early winter, and becoming thoroughly dried before the beetles appear in the following summer, will not be so badly attacked, which very likely accounts for the superstition concerning the proper time of the moon in which to cut timber. It is often asserted, also, that if the bark be peeled off no damage will be done. This, although wanting accurate experiment, seems to be well founded. Timber intended for use in the factory, if valuable enough to warrant the expense, could be protected by housing it before the latter part of May, care being taken that windows or other openings in the shed or building, large enough to admit beetles, be protected by means of wire screens.

Herbert Osborn.

New or Little Known Plants.

Delphinium viride.*

THIS Larkspur (Fig. 29, page 150) of the mountains of Chihuahua is a novelty in its combination of colors. We have Larkspurs blue and Larkspurs white, also pink and scarlet, and even occasionally yellow; but here we have the sepals and the long, stout spur of a decidedly yellowish green, while the short petals in the centre are deep purple. The species is probably a biennial or a winter annual, with a rather stout root, and is about two feet high. It was found during the last season by Mr. Pringle on gravelly bluffs along streams at the eastern base of the Sierra Madre. Seeds were secured, and it is hoped that it may be successfully grown. *S. W.*

Cultural Department.

How to Prepare a Bed for Roses.

THE amateur can grow Roses equal in quality to the fine specimens which are seen on exhibition tables; but to do this there must be no misstep in the cultivation from the very beginning. And at the very beginning must be met the questions, "Where shall we plant and how shall we prepare the soil?"

The bed should be somewhere in a fairly open place, where the plants can have at least 6 or 7 hours of sunshine from April till November. If the shadow of a house or fence falls on the bed three or four hours a day the result will not be fatal, but sunshine all day is to be preferred. Again, the bed must be away from trees; not only from under their shade and drip, but so far away that their roots do not rob the bed of its moisture and fertility. Finally, never plant Roses in an old bed or border where Roses have been growing before perhaps for years. If no other place is available, all the old soil to the depth of two feet should be dug out and carted away and the bed filled in with good fresh soil. This point is of vital importance.

Any good loamy soil, when properly fertilized, will grow Roses. By good loamy soil I mean soil ranging between what gardeners call light sandy loam and heavy clay loam. But where the soil approaches the first limit—that is, where it is of a light, sandy texture, it will be materially helped if some clay or heavy loam is mixed with it. On the other hand, a heavy clay loam will be rendered more porous and better if some sand is thoroughly forked through it.

Of course the bed can be shaped to suit the fancy, but beds star-shaped, or with any other intricate outline; such as we see made for Coleus and Geraniums, are not to be commended. The Roses look better, and can be better cared for, in a circular bed or square block. For a dozen plants a round bed need be no more than four feet six inches in diameter. Nine plants can be placed at equal distances in a circle about 8 or 9 inches from the border, and the remaining three can be placed within this circle at equal distances from each other and from the outer row. A bed eight feet eight inches in diameter will accommodate three dozen plants if they are arranged in three circular rows fifteen inches apart, with seventeen plants in the outer row, twelve in the next, six in the next and one in the centre.

* D. VIRIDE, Watson, Proc. Am. Acad. xxiii. 268. Glaucous and mostly glabrous, 2 feet high; leaves pedately cleft, the segments acutely lobed, the upper leaves more deeply and narrowly divided; flowers rather few, on long pedicels; calyx pubescent, yellowish green, the sepals 6 lines and the stout spur 10 lines long; petals purple, 3 lines long; capsules pubescent.

When the beds are cut on the turf the border should be marked sharply, and a strip of sod cut out clean with a spade. The soil should be then taken off to the depth of 10 or 12 inches and laid on the outside of the bed. The subsoil should next be covered to the depth of three or four inches with well rotted stable manure, which should be forked in and mixed thoroughly to the depth of another foot. The top soil can then be thrown back, covered with another good coat of manure and carefully forked over. In case the subsoil should be found light or gravelly, it should all be carted away. The bottom should then be dug up loosely, and the top soil originally removed should be thrown in and manured as above. The bed should then be filled up with soil from an old pasture, using enough to raise the centre of the bed some three inches above the level of the margin. This should then be manured and forked. This will give a bed of fresh, healthy, active soil, and without this it is impossible to grow the finest Roses. It should be added that thorough drainage is another essential, for Roses will no more thrive in a water-soaked soil than in an unmanured bed of sand or gravel. This work is to lay the foundation of a bed that is to last for years, and it pays to do it well. Indeed, it is time and money wasted to do it in any other way. All subsequent fertilizing is to be applied to the surface. The bottom must be made once for all.

What Roses to plant in such a bed, and how to plant them, must be the subject of another article.

Summit, N. J. *John N. May.*

Hardy Plants for Forcing.

THE first spring flower in our woods gives unusual pleasure, but it is quite as pleasing to see those vernal favorites among our green-house plants. Delicate and unassuming as they are, they will attract more attention than more showy exotics. These latter every one expects to see, but the sight of a wild Columbine any time after Christmas always brings an exclamation of delight. Many of these hardy plants force readily in a cool green-house, and generally remain longer in beauty than when they flower at their normal season. Strong specimens should be selected to be potted in not too large pots in September or October, and plunged in a cold-frame with such plants as Violets. From the first of January, by which time they will be well rooted, they may be brought into the green-house, where they will flower within a period of from three to six weeks. After the flowering is over, and the ground open, they should be planted out again, and, if possible, new stock used for the next winter, to give them time to get well established before they are again used. It must be remembered that the majority of such plants do not require higher temperature than 50° by artificial heat, as the sun in reality does more towards the forcing than the heat. A liberal supply of fresh air should be maintained to prevent damping off, and to keep away the green-fly, which is apt to infest them in closed houses.

Doronicum Caucasicum is well fitted for forcing, and needs but three or four weeks to expand its blooms, which are of deep yellow and over two inches in diameter. This makes an excellent pot plant for decoration, and the long-stemmed flower could be used for cutting. It is a native of the Caucasus. Similar to this is *D. Austriacum* and *D. macrophyllum*. Care should be taken that the plant is not kept too wet, as it decays easily.

Trillium grandiflorum, a beautiful native plant, succeeds well when forced, and the flowers last a long time in perfection. It requires about four weeks to bring it into flower. Cultivated roots should be used instead of collected ones, and if well cared for after the flowering season it might be used for two or three successive winters with good results. This is very useful for cutting and decoration.

Aquilegia Canadensis, our graceful wild Columbine, forces in three or four weeks, and is useful for decoration, but does not last long enough to be used for cut flowers.

Campanula persicifolia and its white variety are two good plants to force. They produce long spikes of either blue or white bell-shaped flowers and last long in perfection. It is native of Europe and requires five to six weeks to bring it into flower.

Geum coccineum plenum, a beautiful plant which is only hardy on high and well drained grounds, makes a fine pot plant, and three to five weeks of green-house culture will induce it to push forth long stems of bright red, semi-double flowers, that are very striking.

Iris Germanica in varieties, and many others of the genus, are first rate plants for forcing. They take three to five weeks, and are very ornamental with their large and beautifully colored flowers.

Caltha palustris is a very bright and striking plant, on account of its large yellow flowers. This requires two or three weeks of forcing, and being rather common in our marshes it might be easily procured. *Phlox amœna* make neat cushions of pink flowers in three or four weeks after it has been taken into the green-house.

Fig. 29.—Delphinium viride.

Viola pedata and *Viola cucullata* are very pretty when forced, and require only a few good bright days to flower them under the glass.

Smilacina stellata is very useful not alone as a flowering plant but for the sake of the delicate green foliage, and is very effective in finishing vases or other larger decorations.

The hardy and native Cypripediums are excellent plants for forcing. *C. acaule* and *C. pubescens* require only three or four weeks of artificial heat, while the showy *C. spectabile* takes from five to six weeks. The *Helleborous niger* is a very useful and ornamental plant when kept in a green-house for about three weeks, but the heat must be moderate, otherwise they turn green instead of white. There are many others like some of the Saxifrages which could be named, but the above will suffice for illustration. *W. A. Manda.*

[The number of plants which can be forced to bloom unseasonably with the aid of a little artificial heat is almost endless. It is a question, however, whether we do not lose more than we gain in thus changing the blooming period of hardy plants. The feeling of freshness and delight which spring brings, with its bursting flower-buds, is somewhat dulled if we have been looking at these same spring flowers under glass during the winter. Each flower has its appropriate season, and is best enjoyed at that season. Daffodils gave far more pleasure in April, and June Roses in June, before they became common winter flowers. Flowers out of season, like vegetables out of season, satiate the taste, without affording the real gratification which a flower or a vegetable gives in its proper season.

The Japanese, who, as a nation, are certainly more fond of flowers than any other people, never force them. They are satisfied with their flowers as they appear in the course of nature, and make annual festivals and holidays to go out and enjoy the blooming period of the Plum, the Iris or the Chrysanthemum.

There are tender plants enough which can be grown under glass without dissipating the pleasures of the garden and the forest, and a return to a more general use of such plants is certainly desirable.—ED.]

Forsythias.—Gardeners recognize three species, namely, *F. Fortunei*, *F. suspensa* and *F. viridissima*. Mr. A. S. Fuller says he has obtained all three from seeds of *F. suspensa*. But in a garden sense they are decidedly distinct. The brightest and best is *F. Fortunei; F. suspensa* is like a trailing form of *F. Fortunei*, and *F. viridissima* in wood, foliage and habit, and in color of flowers is, to the gardener, distinct from either of the others. All are in their most showy condition about the first of May, and this is the time to note their own condition as shrubs and their position in the garden. They should never be scattered haphazard about a place like yellow patches in a "crazy quilt;" nor should they be buried in thickets of other shrubs, nor planted beside a doorway, or alongside a much frequented path, or anywhere else where their presence shall have a glaring and obtrusive appearance. A little way off, as individual specimens, or grouped by themselves, they have a pleasing effect. But let them be in the vicinity of other shrubs or trees, and rising from the turf.

In their wildest and most neglected state they often appear in their least obtrusive and most effective condition, because of their open, slender, graceful form—a shower of gold from their topmost twig to the ground. But in well kept gardens, as we have to regulate the growth of Forsythias and most other shrubs, we cannot allow them unrestricted growth. In many pretentious gardens, public and private, we often find Forsythias, as well as Privet, Japan Quince, Deutzias, and the like, clipped into close, round-headed forms. Such "well-trimmed shrubs" are hideous.

An old Forsythia in a neglected yard, with its golden wands rising and curving and drooping to the turf in fluent grace—surely this is more beautiful than a leafless lump that harmonizes with nothing in Nature. While we studiously avoid the clipped monstrosity, we must curtail the freedom of the wild plant if we would have a handsome shrub and profusion of bloom. And now, after the plants have done blooming, is the time to begin. Shorten back the young (last year's) wood to within a few joints of its base, and cut out gnarled, scraggy and weakly old wood; prevent overcrowding of either old or young wood, and if the shrubs have been neglected so that the old stems have grown up high, leaving the bottom naked, do not hesitate to cut them hard back. The points to be observed are: maintain a good supply of young wood from the ground up, and have the bushes open enough to admit light and air sufficient to well ripen the shoots before next fall, and in this way secure an abundance of flower buds for the spring's display, and work for medium-sized hard wood, rather than stout, sappy growths, and do not cut out the little twigs. Never prune Forsythias from June till they have done blooming, except to thin out overcrowding shoots

W. F.

Campanulas.—In overhauling and top-dressing our rock-garden a few days ago I was astonished with the extreme hardiness and accommodating character of the Bell-flowers. These sow themselves freely, coming up in crevices and on ledges everywhere. *C. Carpathica* produces some well-defined varieties and some fine hybrids. *C. turbinata* is one of the most distinct and best. The flowers are purple, and comparatively large, but the chief varietal distinction, and one always relied upon, lies in its being uniflorous. This variety comes fairly true from seed. *C. pelviformis*, also very handsome, was sent out by Messrs. Frœbel, of Zurich, as *C. turbinata pelviformis*, having been selected from a batch of the variety *C. turbinata*. This variety seldom comes true from seed, and needs to be propagated by division, which is easy. The variety Hendersoni is a distinct hybrid, never producing fertile seed—at least by its own pollen; what it would do if cross-pollenized by *C. Carpathica* I do not know, but it would be interesting to try. The plant's habit is stout, growing 1 foot high, having much-branched flower stems, the flowers being similar in shape and color to those of *Var. turbinata*, but much larger; altogether a handsome and somewhat rare plant. *C. Carpathica turbinata* × *pulla* is noteworthy on account of being a hybrid between two very distinct species. *C. pulla* is the prettiest of all the dwarf varieties, having wiry underground stolons and uniflorous flower stems with pendulous, truly campanulate flowers of dark purple. The hybrid retains the character of *C. pulla* (even to the extent of bearing pendulous flowers) in all but the shape of the flowers, which resemble those of *Var. turbinata*, except being a little smaller. *C. rotundifolia*, the "Harebell" and "Bluebell," grows about one foot high, producing graceful panicles of small, truly campanulate flowers.

T. D. Hatfield.

Magnolia stellata.—A fine specimen of this beautiful Japanese shrub, which flowered profusely a couple of weeks ago in a yard on Fifth Avenue, near the Central Park, attracted the admiration of the public. *Magnolia stellata*, which is also known as *M. Halleana*, was introduced a few years ago by the Messrs. Parsons from Japan, where it is a favorite garden ornament. It is a native of the forests which cover the slopes of Mount Fusi Yama, where it is said to become a small tree. Like *M. conspicua* and *M. obovata*, *M. stellata* belongs to the section of the genus in which the flowers appear before the leaves. They are white, deliciously fragrant, three inches in diameter, the sepals silky-hairy externally, oblong-obtuse, much shorter than the narrow linear oblong petals, which are at first spreading, giving to the flower when expanded the appearance of a pure white star. Later they become quite reflexed. The obovate leaves, borne on short petioles, are narrowly obovate, two to five inches long. *M. stellata* requires the same soil and cultivation as *M. conspicua* and the other Yulan Magnolias. It begins to flower freely when only a foot or two high; and is an important and interesting addition to our perfectly hardy early flowering shrubs. *S.*

Arsenical Poisons on Elm Trees.—The first brood of larvæ of the Elm-leaf beetle will appear in June. Timely applications of Paris green or London purple in water sprayed over and among the foliage of the trees will destroy this pest. But the spray will leave some poison on the grass. The poisoned trees need not be in a pasture lot nor around the dwelling-house to be a source of danger. If there is the least possible chance of horses, cows, sheep or other animals grazing about them, or of children playing there, the greatest caution should be observed in using arsenites.

A Group of Trees or Shrubs—A Suggestion.—Why not take Red Maple, Red Bud, Spice-bush, Shepherdia, Fragrant Sumac, Cornelian Cherry, Leatherwood, Japanese Corylopsis, and other trees and shrubs of somewhat similar character, which bloom before the leaves appear, and group them near each other in some park, or large wooded estate. Hazels and other plants bearing conspicuous catkins might also be admitted, but Magnolias, Forsythias, Japan Quinces, and plants with showy and discordant flowers excluded. As they differ so much in some other ways, much discrimination will be needed in using them. I have never seen such a group, but have a strong inclination to form one. *R.*

Plant Notes.

Japanese Apples.

Of the many species and forms of the Apple cultivated for the sake of their flowers, none is more beautiful than the plant introduced from Japan by Von Siebold, and known in gardens as *Pyrus floribunda* or *P. Malus floribunda* (*Fl. des Serres* xv., *t.* 158.—*Revue Horticole*, 1866, p. 312 with *t.*) Maximowicz has referred this plant to the Chinese *P. spectabilis*, but the deciduous calyx and very small persistent fruit seem to point rather to a derivation from the Siberian, Manchurian and north China *P. baccata*.

It is a vigorous shrub or small tree, very common in Japanese gardens, with long, straggling branches, forming a head sometimes twenty feet through. The bark is dark brown, or nearly black, smooth and shining. The leaves are oval, rather coriaceous, dark green above, lighter and somewhat pubescent on the under side. The numerous large flowers appear with the leaves; they are borne on slender peduncles three or four inches long, and completely cover the branches. The petals are oval-elliptical, longly unguiculate, rose on the outside, nearly white within. The abundant fruit from which the calyx falls before maturity, leaving a minute eye, is hardly larger than a pea; it is round or sometimes oval, dull yellow or red in color, and decays and then dries upon the branches before separating from the peduncles which remain attached to the branches until the following spring.

Our illustration above represents a flowering branch of a form or variety of this Apple from a plant which was sent to this country by Mr. F. Gordon Dexter, of Boston, about twenty-five years ago, with the first bulbs of *Lilium auratum* and the first plants of the golden *Retinospora* and of *Thuiopsis dolobrata* which ever came to the United States. These plants found a home in Mr. Francis Parkman's garden in Jamaica Plain, where this Apple, now a stout bushy tree, perhaps eighteen feet in height, still flourishes. The same variety was afterwards sent to the Messrs. Parsons, of Flushing, by Dr. G. R. Hall, an American physician long a resident in Japan; and it now appears in trade catalogues, both as *Pyrus Parkmani* and *P. Halleana*. It only differs, however, from Von Siebold's plant in its semi-double, darker colored flowers; in the deeper color of the young leaves and peduncles, and in its smaller fruit.

No shrub or shrubby tree surpasses these Japanese Apples in marvelous abundance and beauty of bloom, which is most attractive, perhaps, just before the pink or red flower-buds expand and display the lighter colors of the interior of the flowers. It is astonishing that they are not better known and more often planted. They are beautiful as single specimens and still more beautiful when grouped in great masses. They flower profusely when very small, grow rapidly and continue to improve for years. They thrive in all soils, and neither intense cold, great heat nor drought affect them. No foreign ornamental tree introduced into this country adapts itself more readily to its peculiar climatic conditions.

Fig. 30.—The Double Flowered Japanese Apple.

As Mr. Dawson has shown in some remarkable seedlings which he has raised at the Arnold Arboretum, the Japanese Apple, like the rest of the family, varies considerably from seed, and can be still further improved by careful selection—a fact of which enterprising nurserymen should not be slow to take advantage. *C. S. S.*

Heuchera sanguinea in Mexico.—Accustomed during several years to meet with this plant on the mountains of Arizona and Mexico, and always admiring its mottled leaves and striking flowers, I feel grateful to Mr. Hatfield for recommending it for cultivation, and am prompted to tell of a visit made last September to the station (or, at least, the vicinity) of its original discovery, whence Wislizenus in 1846 brought dried specimens to Dr. Engelmann, who praised it as "beautiful

and delicate, and certainly the most ornamental species of the genus."

The station is on La Bufa Mountain, overlooking the mining town of Cusihuiriachic. Here, hanging from fissures of cliffs of porphyry facing northward, or planted on their narrow shelves, 1,500 feet above the din of the town and the smoke of its smelters, an abundance of strong plants was seen, their rosettes of leaves beautifully marked with white and purple in the strong light of the place, and their flower scapes—bright scarlet when fresh, but maturing or drying crimson—like light plumes tossing in the mountain breezes. From the nature of its habitat—cool ledges, either wet or dry, and even the rich humus at their base—this plant would be expected to thrive in rockeries; and that it will prove hardy in most climates may be inferred from the fact that along the northern limit of its distribution it is exposed to many degrees of frost.

C. G. Pringle.

Vegetable Soaps.—In widely separated countries there are plants, in some cases herbs, and in others trees, which the natives use as a substitute for soap in washing. Whoever has had his linen washed in northern Mexico will bear witness to the efficacy of the root called *armole* in cleansing the linen, but his shirts will come back minus buttons, not so much caused by the detersive power of the *armole*, as by the primitive washing machine used by the Mexican laundress, who selects a large flat stone upon the margin of a stream, upon which the fabric is laid, and beaten vigorously with another flat stone. The *armole* root is the root of a species of *Phalangium*, one of the Lily family, and dried and made into little parcels, is sold in every small town. The soap-wort, *Saponaria officinalis*, common in this country, is known as "Bouncing Bet." This was used in Europe in washing as a substitute for soap, and in hard waters was preferred to it. The number of plants that may be used as a substitute for soap is quite large; the most important of which is the soap-bark tree of Chili, where it is called "Quillai," or "Cullai." The native name has been taken for the botanical name of the tree, which is *Quillaja Saponaria*. The genus Quillaja belongs to the Rose family, and five species are known, all South American; three are Chilian, one Peruvian, and one Brazilian, the most important being the *Q. Saponaria* of Chili, as its bark is largely used in its own country, and forms a considerable article of export. This is a large tree fifty to sixty feet high, with evergreen leaves, and usually small white flowers. Its bark, which is rough without, internally consists of light colored layers, which contain an abundance of saponine, which they readily impart to water, causing it to lather in a similar manner to soap. The bark is in general use in Chili on washing day, and is exported to other countries. It is to be found in our city drug stores, where it is in demand by those who wish to use it for cleansing silk materials. It is said to remove grease and other spots and to impart a remarkable lustre to woolen goods, and is used as a wash for cleansing the hair.—*American Agriculturist.*

The Rock-Garden in Spring.

Fritillaria pudica, although one of the first of the Rocky Mountain plants known to botanists, is very rarely seen in cultivation. It was discovered in the mountains at the head waters of the Missouri, in what is now the Territory of Montana, by Lewis and Clark, in their memorable journey across the continent early in the century, and was described and very well figured by Pursh in his North American Flora. It is a low, leafy plant, six to nine inches high, with alternate linear, glaucous leaves, and clear, bright yellow, pendulous, bell-shaped flowers, nearly an inch across. They are solitary, or sometimes produced in pairs. This plant does not always take kindly to cultivation, but it can be grown in a warm, sunny rockery, if the bulbs are planted deep in the ground, and careful drainage is provided for them. It is well worth all the trouble it takes to cultivate it, as it is one of the most delicately beautiful of all the Fritillarias, as all those who have had the good fortune to see great masses of this modest flower blooming far above the timber line, amidst the melting snows of the Rocky Mountains, can testify.

Orobus vernus is one of the hardiest and in every way most satisfactory of the early flowering herbaceous plants. It is a native of central and southern Europe and belongs to the Veitch Family. It grows about one foot high and forms a compact, bushy mass of foliage, which at this time is covered with handsome, nodding flowers. These are produced in great abundance on axillary peduncles, and when they first open are purple and blue in color, veined with red, later turning blue. The leaves are composed of two or three pairs of ovate-lanceolate, acuminate, shining leaflets. This handsome Pea has been an inhabitant of gardens for 250 years, but it is not now very often seen in this country. It is entirely hardy and grows in any garden soil. It can be increased by division of the roots, or by seed, which is abundantly produced every year.

The Pasque Flower (*Anemone Pulsatilla*) is also in bloom. It is a handsome species of northern Europe and Russian Asia, long cultivated for its large, solitary, violet-purple flowers, very silky on the outside of the sepals. The carpels are long and feathery, like those of the Clematis. This plant succeeds best in well drained and dry situations, and naturally prefers a limestone soil. It forms, when well grown, handsome masses of delicate, finely divided foliage; and flowers freely. A beautiful and interesting form of the common wild Wind-flower (*Anemone nemorosa*), with perfectly double flowers, which was discovered in Connecticut a few years ago, is also flowering here. It is a plant of considerable value, lasting much longer in bloom than the common form.

Two very familiar northern wild flowers of the Lily Family, the Wake Robin (*Trillium grandiflorum*) and the Bellwort (*Uvularia grandiflora*), should find a place in every spring garden. *Trillium grandiflorum* is a low perennial herb, with a simple naked stem, bearing at the summit a whorl of three rhomboid-obovate leaves and a single large, spreading white flower, two or three inches across, and turning rose color in fading. *Trillium grandiflorum* likes a deep, rich soil, and prefers the shade of neighboring trees to the open sunny border, as its home is in northern woods. It may be increased by seed, although it is easier to obtain plants from the woods, which require, however, two or three years to become thoroughly established and to show their greatest beauty. *Uvularia grandiflora* has drooping, yellow, bell-shaped, Lily-like flowers, single or in pairs, at the summit of a slender, leafy stem, one to two feet high. It may be increased by division, and, like the *Trillium*, enjoys the shade of trees and a deep, rich soil. Few plants possess a more graceful, delicate beauty, or better repay the trouble of moving from the woods to the garden.

Corydalis solida, or, as it is often known in gardens, *Corydalis bulbosa*, is the earliest of the genus in flower. It is a pretty little herb a span high, with a tuberous root-stock and long-stalked biternate glaucous leaves, and rather large purple flowers in short terminal racemes. It thrives in dense shade, and is now springing up in all directions from self-sown seed. It is a perfectly hardy plant which may be expected to become thoroughly naturalized in this country. It is a native of central Europe.

More difficult to establish, and much more delicate and beautiful, is its near relative, the Dutchman's Breeches (*Dicentra Cucullaria*) of our western woods, now blooming here. It is a dwarf plant with grain-like tubers, which send up finely cut, graceful, glaucous leaves, and a slender scape, bearing four to eight pretty white flowers tipped with yellow. The generic name *Dicentra*, formed from two Greek words signifying twice and spur, refers to the two-spurred, heart-shaped corolla of these plants. *Dicentra Cucullaria* when first taken from the woods should be potted or boxed in rich sandy loam, and kept close in a frame or cool green-house until new roots are formed. It should then be wintered in a cold-frame and not planted out until spring, which operation should be performed without disturbing the soil surrounding the delicate roots. Once established in a rich soil and in a shady situation, it will require no further attention.

It is often supposed that the common English Primrose (*Primula vulgaris*) is not hardy in this country. Here it succeeds admirably on a dry, grassy bank, which is partially shaded in summer, but which now, when the plants are in bloom, before the neighboring trees have expanded their leaves, is in the full sun light. The only secret of success here with this charming plant is high, well drained soil, the use of good, strong, well established plants, grown in frames for the purpose, and a slight protection of dry leaves left in autumn where they fall from the trees. It well repays this slight trouble.

Boston, May 6th. *C.*

Notes from the Arnold Arboretum.

THE earliest of all the great collection of *Prunus* in flower is *P. Davidiana*, a shrubby Peach from Mongolia, where it was discovered by the Abbé David, who found it also covering the hills in the neighborhood of Gehol (the summer residence of the Emperor), and near Pekin. The specimens in the Arboretum were raised from seed sent by Dr. Bretschneider, long a member of the Russian Legation at Pekin,

to whom the Arboretum owes many interesting plants. *Prunus Davidiana* is a shrub three to six feet in height, or, in cultivation, according to Franchet (*"Plantæ Davidianæ,"* p. 103), a robust tree fifteen to twenty feet high. The bark of the branches and stem resembles that of a Nectarine, and without the fruit the most experienced Peach grower would hardly guess the true character of this plant. It has considerable ornamental value. The white, or sometimes pink flowers, are produced in great profusion, and the flower buds are much hardier than those of other Peaches. This suggests the possibility that this plant might be used in creating a new race of flowering Peaches able to bear the cold of the Northern States. The fruit, however, of *Prunus Davidiana* has no value. It is small, downy, nearly spherical, less than an inch in diameter, grayish white, turning yellow at maturity. The flesh is very thin, separating easily from the stone, even before the fruit is ripe, and is dry and tasteless, lacking almost entirely the odor of the Peach. It wrinkles on the branch before maturity, and soon decays. *Prunus Davidiana* is interesting as the representative of what seems a type intermediate between the Peach and the Almond. A few days later *Prunus tomentosa* is in bloom. This is a shrubby Cherry, forming a dense, compact and handsome bush three or four feet high. It is a native of northern China, whence, probably long ago, it was introduced into Japan, where Von Siebold met with it occasionally in gardens; and admirably figured it in his *"Flora Japonica," t.* 22. This species can be distinguished from the other members of the genus *Prunus* by the thick long tomentum which covers the entire under side of the leaves. The flowers which quite cover the long vergate stems are sessile or short stalked. They are white, tinged with pink, and about the size of those of the common Cherry tree. They open when the young silky leaves are about one-third grown; and the association of the handsome abundant flowers and delicate young foliage is particularly attractive. The handsome fruit ripens in July; it is round or nearly oval, almost transparent, deep scarlet in color, and has a pleasant but rather insipid flavor. *Prunus tomentosa* is perfectly hardy; and its neat habit, handsome foliage, early flowers and showy fruit, entitle it to more general use along the margins of shrubberies or in the borders of small gardens.

Lonicera Standishii and *L. fragrantissima* are in bloom. These are probably forms of the same species. The branches of the former are scabrous, however, and the leaves are deciduous, while in *L. fragrantissima* they are almost evergreen. Both plants produce large, nearly white, deliciously fragrant flowers before the appearance of the new leaves. They are tall, stout, twiggy shrubs, with flexuous pale yellow-brown branches, and oblong acuminate leaves, three to five inches long. They are both doubtless of Chinese origin, although *L. fragrantissima* is a common garden plant in Japan. *L. Standishii* is by far the hardier of the two here, and this fact and its deciduous leaves point to a more northern origin. It was introduced into England by Fortune, the Chinese traveler, who found it a common garden plant at Shanghai. Neither of these plants are very hardy here, but splendid specimens of Fortune's plant are a conspicuous feature in the shrubberies of the Central Park in New York during the last days of April.

A dwarf variety of the common Leather-leaf (*Cassandra calyculata*), sent to the Arboretum by the Messrs. Veitch, is in bloom fully ten days earlier than the American plant. It is a compact and handsome shrub, eight or ten inches high, and well worth a place in any garden border. And this is true of *Myrica Gale*, which, although a denizen of the borders of ponds and deep, cold, submerged northern swamps, is perfectly at home here on a dry, gravelly and exposed ridge, where it has been flowering profusely during the past week. The Sweet Gale is a handsome and very fragrant deciduous shrub, three to five feet high, with pale wedge-lanceolate leaves, appearing later than the flowers, which are produced in stout, dense, chestnut-brown catkins from the upper axils of the branches. It is a native of the northern Atlantic States of northern Europe and of Siberia.

Salix chlorophylla, a low spreading bush, a few inches high, from the Alpine summits of the White Mountains of New Hampshire and from British America, takes kindly to cultivation, and has been in flower for a fortnight. It will make a useful plant for the margins of shrubberies, where a bright, pleasant green is desired rather than conspicuous flowers. Two other North American shrubs, now in bloom, can be used with great advantage for the same purpose. They are the shrub Yellow Root (*Zanthorhiza apiifolia*), a member of the Crowfoot Family, and the fragrant Sumach (*Rhus aromatica*). The *Zanthorhiza* inhabits the shady banks of streams in the Allegheny Mountains. It is a low and very hardy shrub, with erect stems twelve to eighteen inches high. The flowers are small, polygamous, brownish purple, and arranged in short, compound drooping racemes, which appear with or just before the pinnate leaves from large terminal buds. The plant spreads rapidly by the development of stems from the stout roots, which, as well as the bark, are intensely yellow and very bitter. It is a free-growing plant in cultivation and an excellent dwarf under-shrub, easily increased from seed or by division. The Fragrant Sumach is one of the best plants, if not the very best, to connect, in this climate, a mass of larger shrubs, with the turf of a lawn. It is low and spreading and feathers out over the grass in pleasant, irregular masses of pale green, and is never obtrusive with flowers too conspicuous for such situations, or with inharmoniously colored foliage. The minute yellow polygamo-dicœcious flowers, in clustered catkin-like spikes, precede the leaves, which are trifoliate, pubescent when young, thicker and almost coriaceous at maturity, the leaflets unequally cut toothed, the middle one wedge-shaped at the base. They are fragrant when crushed. *Rhus aromatica* is a native of the northern and north-western States, where it inhabits dry, rocky hillsides. It flourishes in any garden soil, and can be easily propagated by layers, or from seed, which is very sparingly produced and not easy to obtain. The leaves in autumn are brilliantly colored in orange and scarlet. This plant is too little known and appreciated in gardens.

The leafless branches of the Spice-bush (*Lindera Benzoin*) are covered with dense compound clusters of bright yellow flowers. This is a tall and pungently fragrant shrub, which is easily cultivated, and recalls, at a little distance, the European Cornelian Cherry (*Cornus mascula*). Its early flowers brighten low, damp woods and pond sides through the Northern States.

Andromeda floribunda, one of the hardiest of the broad-leaved evergreens peculiar to the Allegheny Mountains, is loaded with racemes of pure white, handsome flowers. It is a desirable plant, which forms in cultivation a dense, leafy shrub, four or five feet high, and which will grow in nearly all soils and exposures. A slight covering in winter of evergreen boughs protects it from burning, and is of general advantage to the plant, and this is true, in this climate, of nearly all broad-leaved evergreens.

The Mayflower or Trailing Arbutus (*Epigæa repens*) is now well established in the Arboretum, and is in full flower—almost ten days later, however, than in the woods at Plymouth, where it abounds. It is a prostrate, trailing and scarcely woody plant, with evergreen, rounded, reticulated leaves and deliciously fragrant, rose colored flowers in small axillary clusters. It is the best known and most popular wild flower of New England, and efforts to cultivate it are often made. The Mayflower, however, is extremely impatient of confinement and can be naturalized in new localities only with the greatest care. Young plants (it is useless to try to transplant old plants) should be taken up late in September or in October, and carefully potted or planted in shallow boxes, in a compost of sandy peat, and then kept in a close atmosphere in a green-house or frame until new roots are formed. The plants can then be wintered in a cold pit, but should not be planted out until the second spring, by which time they will be strong and vigorous and able to take care of themselves. They will do best if planted on the north side of a hill in a compost of rather light sandy soil mixed with leaf mould. When once it has a firm hold of the soil, the *Epigæa* will spread rapidly, and will repay the labor necessary to establish it. *J.*

May 7th.

The Forest.

The Pennsylvania Forestry Association.

THE annual meeting of this active society was held in Philadelphia on the evening of May 3d, with Burnett Landreth in the chair. The first address was by Dr. N. H. Egleston, of the Department of Agriculture, on the æsthetics of tree culture. Mr. J. B. Harrison was the next speaker, and after a cordial allusion to the poetic beauty of the address which had preceded his own, he said, in substance:

"Our chief interest in forestry is, of course, in the preservation and reproduction of trees for the most common uses, and we have to deal with large masses of forest in their relation to the water supply of vast areas of country, and with forestry in detail, in the case of woodlands in the hands of individual citizens. It is encouraging to see so many people drawn together

by interest in this subject. I recall the years of lonely effort in this field, when the only forestry meetings were held when two or three pioneers met to compare notes of their observations, and consult regarding plans for arousing public attention to the rapid destruction of the forests in every part of our country. There has been considerable discussion of forestry subjects within the last few years, but the practical results achieved, in the preservation of our forests, are, thus far, very slight.

"The Adirondack mountain region in northern New York is by far—or it *was* a few years ago—the most important body of forest lands in the eastern portion of our country. But these magnificent woods have now been for several years in process of rapid extinction. There was a well equipped Forest Commission in New York a few years ago, the most competent, indeed, that has yet been appointed in any State of our country, and this Commission made a thorough examination of the condition of every part of the great North Woods, and reported a plan which, if it had been adopted by the State, and administered in good faith, would have stopped the progress of ruin and desolation, insured the preservation of most of what at that time remained of the original Adirondack forests. But there was sufficient ignorance, indifference, apathy and other unfavorable influences, even in New York, to defeat this carefully matured plan. Vested interests and partisan political considerations, working together in defense of existing methods of mismanagement, were too strong to be overcome by the friends of the forests, and the process of destruction has gone on with little check until now. I know of but two or three men who have any just idea of the extent and thoroughness of the ruin which has been wrought in northern New York. But lumbermen who have known the Hudson River for forty years say that the summer flow of that stream has diminished one-fourth or one-third during that time. The railroad people are completing arrangements for the destruction of most of the woods which now remain in that region, and efforts are being made to obtain legislation which will permit the leasing of tracts of State fores lands to rich men from the towns. It would be hard to devise a more unreasonable or mischievous measure. It ought to be promptly condemned by the people of the Empire State.

"The destruction of the woods goes on in nearly every part of our country in much the same way. I have observed the work of the tree-slaughterers in the turpentine forests of our southern Atlantic States, and have watched the work of railroads and lumbermen, and of forest fires, in the great mountain forest regions of the West. I have studied the magnificent forests along Puget Sound and in the Cascade Range through Washington Territory and Oregon. The forest masses in every part of our country are being rapidly and inevitably destroyed. As they perish the water-supply for the great river systems of the country is diminishing, and vast territories are exposed to the evils of destructive floods and exhaustive drought.

"The question of methods for the preservation of our great forests is one of exceeding difficulty, and the chief obstacles are psychological—that is, they are found, not in any feature or circumstance of the condition of the forests themselves, but in the habits and qualities of mind, thought and character of the American people. As a nation we are much disposed to an excessive reliance upon legislation as a means for the attainment of nearly all objects which we regard as desirable. The fact is that it is comparatively easy to obtain almost any imaginable legislation. But law alone, in relation to any subject so complex as the preservation of our forests, is of very slight value. No act of Congress, or of a State Legislature, can have much effect in changing the habitual course of thought, feeling and action in the mass of the people of our country. But precisely such a change is indispensable, if our forests are to be preserved.

"The truth is that nothing short of an advance in civilization on the part of the American people would be sufficient to stop the process of forest destruction which is now everywhere going on. The wisest forest laws would inevitably be administered very ineffectively at first. Many mistakes would be made, and if we have to depend chiefly upon the effect of legislation for the preservation of our forests, it is most probable that by the time we have learned how to take care of our forests efficiently we shall have none remaining to take care of. To prepare us for the wise care of the varied and widely related interests which depend upon our forests we need important and radical changes in the thought and spirit and character of our people. While the popular feeling about wealth, about *bric-a-brac*, about the objects of life remains what it is, the destruction of our forests, and of all that depends upon them, is likely to proceed unchecked.

"I talked with a farmer in south-western Iowa last summer who has cut off thousands of Black Walnut trees from ten to fifteen inches in diameter, during the last thirty-five years, and sold them for cord-wood. I showed him price-lists for black walnut lumber and veneers from New York dealers, and easily convinced him that if he had let his walnut timber stand till now it alone would be worth far more than his whole farm is now worth. He said he had no doubt it was true. Then he added, 'But it is too much trouble to think of anything so far ahead.' That is the key to many things in our national character.

"In our thought of the supreme value of legislation for forest preservation and reproduction we are beginning at the wrong end of the business, and are putting that first which should be last. A long course of education of the people regarding the facts of the subject will be necessary before adequate legislation can be devised or efficiently applied. What we chiefly need now is an era of teaching and instruction regarding the subject—teaching that shall be intelligent and intelligible, comprehensive, coherent, systematic, iterant and authoritative, because based upon competent knowledge. The greatest step in advance ever taken in this country in connection with forestry subjects has been made this year, in the establishment, in New York, of a journal devoted to the discussion of forestry in all its aspects, and to the dissemination of knowledge in relation to this subject.

"Europe, and every other part of the old world, can give us all needed lessons of warning; can show us the tragical consequences of man's want of wisdom, care and foresight in his treatment of the forests in every land. But even for these lessons we do not need to cross the ocean. We already have created small deserts in various parts of our own country, where the area of desolation and of cureless ruin grows larger every year. I remember places where the drifting sand is steadily swallowing more and more of the once fertile slopes where a century ago the White Pine grew four feet in diameter.

"I do not think, however, that Europe can give us much help as to methods of forest care or management. The psychological conditions are so very different here, that we shall have to learn our own lessons by our own observation and study and experience. Our social and political conditions are essentially different from those of any European nation. So are the relations of capital to the mass of the people. I have no doubt that in time we shall evolve American methods of forest management. The best means to that very desirable end must be vigorous, free, intelligent and persistent discussion."

Correspondence.

To the Editor of GARDEN AND FOREST:

Sir.—Any one acquainted with the southern side of Long Island will readily recall the vast stretches of low land fringing the borders of the various bays for which that part of the coast is noted. Its only use, apparently, is to furnish a little salt hay; but it has often occurred to me that there might be some tree which would grow in such situations, and be worth planting there. Has anything ever been tried in these dreary wastes, and with what success? If not, what would you recommend for trial? It goes without saying that if only some arborescent growths could flourish in such spots where the soil must be saturated with water more or less saline, the land would in time become very valuable.

I believe there have been some interesting and successful experiments in improving low sandy wastes along the coasts of New England and New Jersey, but I never heard of any attempts to reclaim the marshy borders of our great salt-water bays. Very truly yours,

New York, May 1st, 1888. *X. Z.*

[No tree hardy in the Northern States will grow in saline soil or in situations where its roots reach salt water. The salt-marshes, which are so common along the north Atlantic Coast, are really valuable for the hay they produce. This crop in some parts of New England is estimated to yield six dollars a year net per acre; and marsh land finds a ready market at $100 an acre. Such land is too valuable, therefore, to plant with trees even if trees could be made to grow on it. The low, rolling, sandy hills so common at some points on the south shore of Long Island might be planted to advantage with Pitch Pine (*P. rigida*) in the same manner that similar land on Cape Cod has been covered with this tree.—ED.]

Pictures of Japan.

An interesting collection of pictures of scenes in Japan was recently exhibited in the Reichard gallery on Fifth Avenue. The painter, Mr. Theodore Wores, is a young Californian, who, after completing his studies at Munich, passed three years in Japan and is now established in a New York studio. Some of his pictures represented street-life in the Island-empire or works of architecture, but many dealt with themes of exceptional attraction to lovers of flowers and students of gardening art. In one, for example, we saw a long avenue of pink-blossoming Plum-trees, with a couple of young girls examining the strips of paper, inscribed with impromptu verses, which, in accordance with a pretty national custom, are frequently hung on these favorite trees when they are in flower and the people go in thousands to enjoy them. The wide road, which for the moment wore the aspect of a great flowery arbor, had an open space in the centre wide enough for the passage of the small vehicles of the country and then on either side a line of oval stones sufficiently raised to give comfortable footing in wet weather. Another canvas showed two young girls in a jinriksha, bringing home great branches of the double-flowering pink Cherry, and on more than one we saw large trees of this species in full bloom, in front of tea-house or temple. Another showed the balcony of a tea-house overhanging a pond in which floated great golden carp, and overhung itself by an immense Wistaria-vine, with clusters of flowers, such as are not uncommon in Japan, fully three feet in length. Another had as the foreground a Japanese room, the widely open side of which gave an enchanting glimpse of a garden with miniature streams and bridges, and, in front of a small building, a large tree with smooth light-colored bark and coral-colored blossoms, called in Japan *Sarosse-souberi*—the Indian Crape Myrtle (*Lagerstroemia Indica*). A glimpse of a garden at Nikko, with a tiny cascade overhung by a Weeping Willow, was also interesting; but the most attractive of all the pictures to a lover of artistic floral arrangements was the one called "A Lotus Pond." The pond formed part, apparently, of a large park, and was itself a rectangular basin, perhaps sixty or seventy feet in diameter, filled by a thick, tall growth of pink Lotus. It was enclosed by a well-built stone wall crowned with a simple yet dignified stone balustrade. Large rectangular posts finished with ball-like ornaments and widely spaced, were the chief supports of a plain rectangular rail, while the many lesser intermediate supports were diamond-shaped on plan and set anglewise to the road. Where the water of the pond flowed off in a little stream the road was carried over an arched bridge of graceful low curve, and the balustrade here became a solid paneled parapet, sparsely ornamented with carving. Nothing better could be found for imitation in this country than this balustrade and bridge, and many lessons in the designing of wooden railings might also be gathered from Mr. Wores's pictures. When used in connection with much foliage they appear to be generally painted of a soft pale green, lighter than the green of the foliage but harmonious with it, having nothing of that crude, acid tinge which our own green pigments so often show. And in all cases the uprights were plain and far apart, and less conspicuous in effect than the three or four horizontal members. The contrary is usually the case in our own wooden fences, but a comparison of their trivial, fragile appearance with the simple solidity of these Japanese fences would convince any eye that we should do well to change our practice.

It was interesting to note in one of Mr. Wores's street-scenes how the artistic instincts of the Japanese display themselves even in the humblest and simplest articles of utility. The chief figure in the scene was an itinerant flower-vendor, and his wares were carried, not in baskets, but in two great open cages of bamboo, to the uprights and cross pieces of which were attached hollow sections of bamboo, some large and some quite small, in which the flowers were placed—always in bunches of a single sort. The whole arrangement was light, portable and altogether practical, yet as pleasing to the eye as though beauty had been the sole end in view.

M. G. van Rensselaer.

The Boston Flower Show.

The May exhibition of the Massachusetts Horticultural Society held on the 12th inst. was far richer than was expected, not only in plants competing for prizes, but in the variety and excellence of other contributions. Among the most noticeable plants was a magnificent pyramidal specimen of the Indian *Azalea decora* nearly eight feet high from Mr. J. L. Gardener, for which he was awarded a silver medal. Denys Zirngiebel exhibited several dishes of the best strain of Pansies ever shown in this country. The flowers were more than three inches in diameter, of good form and substance, and the colors cannot be described. Some were a genuine red, while others had almost all imaginable colors blended together. The committee justly awarded a silver medal for those beauties. Good plants of Calceolarias were shown by Thomas Clark and W. Spencer, and in the first collection was a plant with two-lipped flowers which seems quite desirable. Some fine Pelargoniums were sent by W. Martin, gardener of N. T. Kidder, Esq., and some by J. H. White, who also showed some good Gloxinias. Mr. W. Spencer exhibited well grown plants of *Cattleya Skinneri*, *Cattleya Mossiæ* and *Anguloa Clovesii*, while Mr. Martin staged a fine plant of *Dendrobium thyrsiflorum* with eight spikes, *Cypripedium Lawrenceanum* and *C. barbatum*. Mrs. P. D. Richards showed a very instructive collection of named native plants. The display of cut flowers was very attractive.

Retail Flower Markets.

New York, *May 19th.*

There are complaints of dullness of trade throughout the city. Flowers are plentiful, but the average quality of them is not satisfactory. Hybrid Roses are short-stemmed as a rule. American Beauty, Magna Charta and Baroness Rothschild are the Roses arriving in the finest condition. Ulrich Brünner is also very handsome. Long-stemmed flowers of the above varieties bring 75 cts. each. General Jacqueminots are small and scarce. The best cost $3 a dozen. Countess of Pembroke and La France sell for $2.50 a dozen. Madame Cuisin, Bride and Catherine Mermets cost $2 a dozen. Moss Rosebuds are esteemed the choicest of the Rose stock. These are $5 a dozen. Puritan Roses are $4 and $6 a dozen. Perles, Niphetos and Souvenir d'Un Ami are $1.50 a dozen. Papa Gontiers and Bon Silenes are 75 cts. a dozen. Carnations are 50 cts. a dozen. Southern Lilacs have disappeared, and this flower is scarce; although a few come from New Jersey. Violets are virtually out of market. Pansies are very handsome, and 25 cts. a dozen. Dutch Hyacinths are $2 a dozen, but are in slow demand. Tulips are 50 and 75 cts. a dozen. Daffodils do not drop below 75 cts. a dozen, and Lilies-of-the-Valley are disposed of easily at $1 a dozen if well grown. Mignonette is 25 and 50 cts. a dozen. The large spiral sorts have disappeared. *Narcissus poeticus* costs 75 cts. a dozen, and Gardenias are $3. Callas bring $3 a dozen, and Gladioluses the same. Orchids are much used for dinner decorations. Cattleyas are the favorite variety. They cost 50 cts. a flower.

Philadelphia, *May 19th.*

The only novelties worthy of mention that have appeared this week are single Dahlias and Gladioluses. Single Dahlias are admirable for cut-flower purposes; they sell at $3 a dozen. Gardenias are more plentiful, and sell at $2.50 per dozen. Roses in general are not so good in quality. Catherine Mermets, Brides, Bennetts and La France sell at $2 a dozen. Perles and Sunsets from $1 to $1.50. Niphetos and Papa Gontier, $1; Bon Silene, 75 cts.; Madame Cuisin, $1.50; Madame Gabriel Luizet, $3 to $4. These retain their delicate coloring, but are falling off in size. Baroness Rothschilds are $3. Jacqueminots, $1.50 to $2.50. American Beauty rules higher in price than any other Rose now offered—quotations are from $3 to $5, choice flowers selling readily at the latter figure. Tulips range from 50 cts. to $1—the fine late varieties selling at the highest price. Carnations and Mignonettes 35 cts., and Pansies, 25 cts. a dozen. Lilacs sell on the street corners as low as 10 cts. a bunch of ten sprays. Apple and Cherry blossoms are occasionally offered at 10 cts. a bunch. The Maidenhair Fern (*Adiantum cuneatum*) sells at 35 cts. a dozen fronds. It is used largely in plateaus, with the living plants plunged in Moss; in this way they remain fresh for a long time. Gladiolus in limited quantities sells at 25 cts. a spike.

Boston, *May 19th.*

The week of rainy weather, so beneficial to all out-door vegetation, has had an opposite effect on hot-house productions, particularly Roses. The Roses coming to the market at present show plainly the influence of the damp, dark weather. Catherine Mermets are decidedly off color. The same is true of Bon Silene and La France. Jacqueminots are scarce and Hybrids generally almost unobtainable. Roses of the small Tea classes sell for 75 cts. per dozen. Fancy Teas, $1.50 to $2.00, and Jacqueminots at $4.00 to $5.00 a dozen. Carnations are more abundant and of better quality; 50 cts. a dozen is the ruling price for long stemmed blooms. Lilies-of-the-Valley, Tulips and Narcissus grown out-of-doors, are beginning to come in. They bring from 50 cts. to 75 cts. a dozen. Ascension Lilies are still in good supply at $1.00 a dozen, while $2.00 is asked for *L. longiflorum*. There is an abundance of white Stocks in market at present. The quality is of the best, and although somewhat coarse, yet their delicious fragrance makes them a welcome addition to assorted boxes of cut flowers. It is fortunate that spring flowers are popular, as there are but few very choice varieties offered. Marguerites, Pansies, Mignonette, Heliotrope, and such small flowers are abundant and very cheap. Maidenhair Ferns are now of best quality. Smilax still rather scarce.